

REMARKS

By this amendment, Applicants have amended claims 1, 6, 9 and 10. Claim 1 has been amended to include that L¹ is a ligand having at least one electron-deficient olefinic double bond carrying 1-4 substituents, each substituent having an electronegativity greater than that of a hydrogen substituent. Support for this amendment can be found in the specification, for example, at page 9, lines 21-28. Claim 6 has been amended to delete a duplicate typographical error of minor character. Claims 9 and 10 have been amended to include a process step for the homogenous catalysis of an organic reaction. None of these amendments adds new matter. Applicants respectfully request entry of this amendment and reconsideration of the application.

Allowable Subject Matter

Applicants thank the Examiner for acknowledging that claims 3-5, 7 and 8 would be allowable if rewritten in independent form.

Rejection Under 35 U.S.C. § 112, 2nd Paragraph

The Examiner rejects claims 9 and 10 under 35 U.S.C. § 112, second paragraph as allegedly being indefinite. Applicants respectfully traverse this rejection.

Applicants submit that the claims are clear to one of ordinary skill in the art upon reading the specification. Nevertheless, in order to expedite prosecution, Applicants have amended claim 9 to recite a process step and claim 10 to recite the specific organic reactions of the process step of claim 9. Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. §112, second paragraph be reconsidered and withdrawn.

Rejection Under 35 U.S.C. § 101

The Examiner rejects claims 9 and 10 under 35 U.S.C. §101 as allegedly being directed to non-statutory subject matter for failing to recite one or more process steps. Applicants respectfully traverse this rejection.

Applicants submit that the Examiner has not made a *prima facie* case that the claims are directed to non-statutory subject matter. However, to expedite prosecution of the present application, Applicants have amended claim 9 to recite a process step and claim 10 to recite the specific organic reactions of the process step of claim 9. Accordingly, Applicants respectfully submit that claims 9 and 10 are directed to statutory subject matter and request that the rejection under 35 U.S.C. §101 be reconsidered and withdrawn.

Rejection Under 35 U.S.C. § 102(a)

The Examiner rejects claims 1, 2, 6, 9 and 10 under 35 U.S.C. §102(a) as allegedly being anticipated by DE 100 62 577 (Beller). Applicants respectfully traverse this rejection.

The Examiner takes the position that Beller discloses at pages 5 and 6 a transition metal complex having a monodentate carbene ligand of formula II or III where the metal complex has an additional ligand having two electron deficient olefinic double bonds. The metal complex can be used as a homogenous catalyst. Thus, the Examiner concludes that Beller allegedly anticipates claims 1, 2, 6, 9 and 10.

Applicants respectfully disagree with the Examiner's position. For a rejection to be sustained under 35 U.S.C. §102(a), each and every element of the claimed invention must be disclosed in the cited prior art reference. The claims have been amended to include that L¹ is a ligand having at least one electron-deficient olefinic double bond carrying 1-4 substituents, each substituent having an electronegativity greater than that of a hydrogen substituent. Applicants submit that Beller does not disclose this feature of electron deficient ligands. Rather, Beller discloses only electron-rich ligands having a low electronegativity (e.g., hydrogen substituent, which has an electronegativity of 2.2 according to the Pauling scale below).

→ Atomic radius decreases → Ionization energy increases → Electronegativity increases →																		
Group	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Period																		
1	H He																	
	2.20																	
2	Li	Be											B	C	N	O	F	Ne
	0.98	1.57											2.04	2.55	3.04	3.44	3.98	
3	Na	Mg											Al	Si	P	S	Cl	Ar
	0.93	1.31											1.61	1.90	2.19	2.58	3.16	
4	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
	0.82	1.00	1.36	1.54	1.63	1.66	1.55	1.83	1.88	1.91	1.90	1.65	1.81	2.01	2.18	2.55	2.96	3.00
5	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
	0.82	0.95	1.22	1.33	1.6	2.16	1.9	2.2	2.28	2.20	1.93	1.69	1.78	1.96	2.05	2.1	2.66	2.6
6	Cs	Ba	*	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
	0.79	0.89		1.3	1.5	2.36	1.9	2.2	2.20	2.28	2.54	2.00	1.62	2.33	2.02	2.0	2.2	
7	Fr	Ra	**	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Uub	Uut	Uuq	Uup	Uuh	Uus	Uuo
	0.7	0.9																
Lanthanides	*	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu		
		1.1	1.12	1.13	1.14	1.13	1.17	1.2	1.2	1.1	1.22	1.23	1.24	1.25	1.1	1.27		
Actinides	**	Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr		
		1.1	1.3	1.5	1.38	1.36	1.28	1.13	1.28	1.3	1.3	1.3	1.3	1.3	1.3	1.3		
Periodic table of electronegativity using the Pauling scale																		

Periodic table of electronegativity using the Pauling scale

In contrast, Applicants claims include that the ligand has a substituent having an electronegativity greater than that of a hydrogen substituent. Thus, the electronegativity is higher than the 2.2 of hydrogen. For example, claim 3 includes embodiments where the substituent may be a cyano group (CN), electronegativity of nitrogen is 3.0; aldehyde group (-CHO), electronegativity of oxygen is 3.44; ketyl radical (=C=O), electronegativity of oxygen is 3.44; carboxylic acid group (-COOH), electronegativity of oxygen is 3.44; carboxylic ester radical (-CONH₂), electronegativity of oxygen is 3.44, carboxamide radical (-CONH₂), electronegativity of oxygen is 3.44 and nitrogen is 3.5; or N-substituted carboxamide radical (-CONR₂), electronegativity of oxygen is 3.44 and nitrogen is 3.5.

Unlike the electron deficient substituents of claims 1, 2, 6, 9 and 10, Beller discloses a diene component (paragraph 19) where the allyl group (CH₂=CH-CH₂-) does not carry any electron-deficient substituents, thus the allyl-compounds: diallylether, diallylamine, etc. as well as divinylbenzole are all not considered electron-deficient

substituents. For Beller's substituted divinylsiloxanes ($\text{CH}_2=\text{CH}-\text{SiR}_2-\text{CH}=\text{CH}_2$), one of ordinary skill in the art would know that the electronegativity of Si is 1.9 and thus the electronegativity is lower than hydrogen.

Since Beller does not disclose, teach or suggest the claimed electron deficient ligands of claims 1, 2, 6, 9 and 10, then it is respectfully submitted that Beller does not disclose each and every element of the claimed invention. Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. § 102(a) be reconsidered and withdrawn.

Conclusion

Reconsideration and allowance are respectfully solicited.

Applicants petition the Commissioner for three-month extension of time and enclosed the required fee. No additional fee is believed to be due with respect to the filing of this amendment. If any additional fees are due, or an overpayment has been made, please charge, or credit, our Deposit Account No. 11-0171 for such sum.

If the Examiner has any questions regarding the present application, the Examiner is cordially invited to contact Applicant's attorney at the telephone number provided below.

Respectfully submitted,



William D. Schmidt
Registration No.: 39,492
Attorney for Applicant

Kalow & Springut LLP
Telephone No.: (212) 813-1600